

REMARKS

Favorable reconsideration and allowance of the claims of the present application are respectfully requested.

Claims 8 and 10-13 are pending. Claims 8, and 10 - 13 stand rejected under 35 U.S.C. §103(a), as being unpatentable over US 2003/0186161 A1 (“Fujimori”) in view of US 4,814,244 (“Koguchi et al.”) or in view of Koguchi et al. and US 4,954,218 (“Okumura et al.”). Claims 8, and 10 - 13 also stand rejected under 35 U.S.C. §103(a), as being unpatentable over US 2002/0090569 A1 (“Suzuki et al.”) in view of Koguchi et al. or in view of Koguchi et al. and Okumura et al.

Applicants respectfully traverse the rejections because the references do not teach or suggest the invention as set forth in the amended claims.

Claim 8 recites a method of forming a patterned material structure on a substrate. The method comprises use of a resist composition that includes a low vapor pressure base and a room temperature solid base. Claim 8 is amended to limit the low vapor pressure base to triethanolamine at a mole ratio of 0.15 to 0.50 relative to the room temperature solid base. Claim 8 is further amended to clarify that the step of removing radiation-exposed portions of said resist forms a patterned resist structure *having a profile with minimal footing*. Support for the Claim 8 amendments is found throughout the specification (see e.g., paragraphs 0046 and 0089). Claim 10 is amended to limit the acid-labile protecting group to a moiety selected from the group consisting of ketals, and orthoesters. Support for the amendment to Claim 10 is in Para [0039]. Claim 11 is amended merely to correct a typographical error. Applicants submit that no new matter is added by, and request entry of, these amendments.

Applicants submit that the combination of Fujimori or Suzuki et al. with Koguchi et al. does not render obvious applicants’ claimed method as recited in amended Claim 8.

Fujimori teaches photosensitive resist composition comprising “a basic compound, wherein the basic compound is (C-1) a mixture of at least two basic compounds having different structures, (C-2) a basic compound containing a substituted or unsubstituted aliphatic hydrocarbon group having not less than 8 carbon atoms, or (C-3) a basic compound selected from an oxygen-containing primary aliphatic amine, and

oxygen-containing secondary aliphatic amine and an oxygen-containing tertiary aliphatic amine.” Fujimori discloses that the mixture of C-1 can be compounds selected from five general structures [Fujimori 0233-0250], that the basic compound C-2 can be used in combination with “a nitrogen-containing basic compound” [Fujimori 0251-0264, see 0252 and 0258], and similarly that basic compound C-3 “may be used individually or as a mixture of two or more thereof” [Fujimori 0273]. Indeed, thousands, if not millions, of combinations are possible. Nowhere does Fujimori specifically identify triethanolamine as a preferred component of the basic compound.

As to the amount of each base compound of each C-1, C-2 or C-3 combination, Fujimori recommends that relative to the combination, the component used in the lesser amount be no less than 10% by weight [Fujimori 0248, 0264, and 0273], which in the case of a combination of benzimidazole and triethanolamine translates to a broad mole ratio range between 0.09 and 7. Nowhere does Fujimori teach or suggest that the far more specific basic composition of Claim 8 comprising triethanolamine at a mole ratio relative to a room temperature solid base in the range of 0.15 to 0.5 is useful to “forming a patterned resist structure having a profile with minimal footing” as Claim 8 now recites.

Suzuki et al. is directed to a radiation-sensitive resist composition which comprises an acid diffusion controller. The acid diffusion controller can be one or a combination of compounds, selected from at least seven general compounds which are 1) $\text{NR}_1\text{R}_2\text{R}_3$ which R groups can be H, a substituted or unsubstituted alkyl group, substituted or unsubstituted aryl group, or substituted or unsubstituted aralkyl group, 2) a diamino compound, 3) a polymer having three or more nitrogen atoms, 4) a low molecular weight compound with one or more amino groups having at least one hydrogen replaced by a t-butoxycarbonyl group, 5) an amide group-containing compound, 6) a urea compound, 7) a nitrogen-containing heterocyclic compound, or 8) “and the like”. [See Suzuki et al. 0835.] As with Fujimori, at least thousands, if not millions, of combinations are possible. Of the specific examples Suzuki et al. provides, three include triethanolamine and an imidazole as components of the acid diffusion controller. [See Table 1.] Those examples teach triethanolamine with 2-phenylbenzimidazole at 0.15/0.2 parts [Example 4] or at 0.06/0.1 parts [Example 8] or with benzimidazole at 0.15/0.2 parts [Example 14], which convert respectively to mole ratios of 0.98, 0.78, or 0.59. Nowhere does Suzuki et al.

does teach or suggest triethanolamine and a room temperature solid base at a mol ratio of 0.15 to 0.5 to form “a patterned resist structure having a profile with minimal footing” as Claim 8 requires.

Kujuchi et al. is cited for disclosure that a resist pattern can be used to produce a semiconductor mask. Okumura et al is cited for disclosing use of reactive ion etching in semiconductor processing. Applicants submit that neither Kujuchi et al. nor Okumura et al., either separately or in combination, alleviate the above-noted defects of Fujimori or Suzuki et al.

In view of the preceding remarks, Applicants respectfully submit that Claim 8 is patentable over the cited references and in condition for allowance.

Claim 10 has been amended to correctly site the transferring step of Claim 8. Claim 11 is amended to require that the acid-labile protecting group be either a ketal or orthoester. Applicants submit that the dependent claims 10-13 are patentable by virtue of their dependency from a patentable independent claim and the additional features of the invention they define.

CONCLUSION

Applicants submit that all pending claims are patentable. As such, applicants request withdrawal of the present 103 rejections and allowance of claims.

No fees are believed to be due in connection with this paper. However, if there is any such fee due, please charge any such fee to the deposit account No. 09-0458.

Respectfully submitted,

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